

Long-billed Curlew (*Numenius americanus*)

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Fish and Wildlife Habitat Management Leaflet

Number 7



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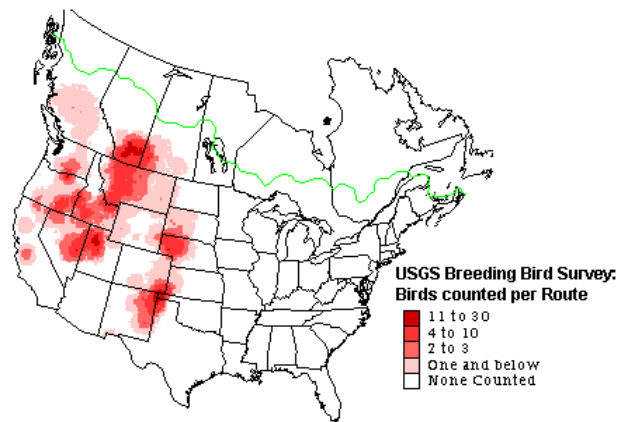
General Information

The long-billed curlew is the largest member of the sandpiper family with a total body length of 21-26 inches, including its long bill (up to 4 ¼ inches in juveniles and 8 ¾ inches in adults). Curlews, snipe, sandpipers, woodcock, yellowlegs, dunlins, dowitchers, and willets are a few representatives of the 82-species that comprise the global sandpiper family. Although long-billed curlews are considered wading birds or shorebirds, they are primarily ground-dwelling. Its long, down-curved bill and long legs are physical adaptations that make it identifiable as a shorebird. Most shorebirds are associated strictly with wetland or coastal environments. However, the curlew's use of other habitat types for survival, such as short-growth grassland prairies, is indicative of its unique life history and habitat requirements. Because of the long-

billed curlew's diverse habitat needs, managing habitats for this species can potentially benefit many other species of wildlife as well.

Once common nesters of grassland prairies and meadows throughout the western and mid-western United States, long-billed curlew populations are now much smaller and less widely distributed. Uncontrolled hunting during the late 1800s and early 1900s and widespread conversion of native short-grass prairie grasslands to agricultural fields up to the 1930s severely reduced curlew populations, and in many regions eliminated them entirely. There is also evidence that curlew populations may have been adversely affected by organochlorine pesticides in certain regions. Many present-day agricultural practices, livestock grazing, and other habitat disturbances have prevented recovery of long-billed curlew populations in many areas.

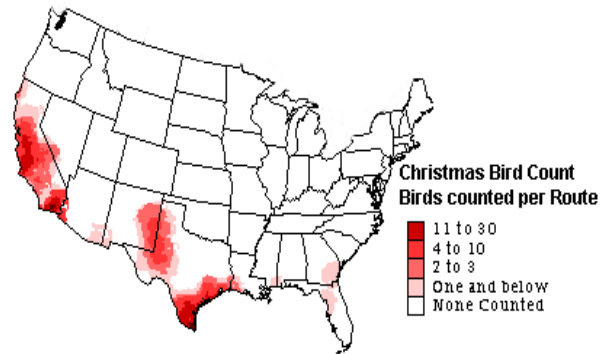
This leaflet is designed to serve as an introduction to the habitat requirements of the long-billed curlew and to assist landowners and managers in the development of a comprehensive curlew management plan. The success of any individual species management plan depends on targeting the specific needs of the desired species and analyzing the designated habitat area as a whole to ensure that all required habitat elements are present. This leaflet provides a number of practical habitat management activities that can be conducted on private lands to boost local long-billed curlew populations and encourages involving fish and wildlife professionals in program planning to identify additional management actions needed over time.



Long-billed Curlew Breeding Range

Range

The breeding range of this migratory species extends from eastern New Mexico and the Texas panhandle, north through western Kansas, central Nebraska, central South Dakota, and western North Dakota and west to portions of Montana and southern Alberta, Saskatchewan, Manitoba, and British Columbia. In the Great Basin the curlew ranges from Utah west to California and north into eastern Washington and British Columbia. Winter distribution is scattered across the southern United States. Long-billed curlews winter from California, into western Nevada, Arizona, eastern New Mexico, western and southern Texas, and coastal Louisiana south to Baja, California, and Guatemala. Wintering curlews are found in small numbers along the Atlantic coast from South Carolina to Florida as well.



Long-billed Curlew Winter Range

Habitat Requirements

General

Short-growth grasslands, mixed-grass prairies, meadows, grazed mixed-grass and scrub communities, cultivated fields, lawns, mud flats, grassy floodplains, sandy islands, shoals, salt marshes along coastal shorelines, and edges of ponds, lakes, and other non-flowing bodies of water comprise common habitats used by long-billed curlews. Long-billed curlews rely on the cover and openness of grasslands, prairies, and pastures to nest and rear young. Winter habitat consists primarily of tidal flats and other coastal habitats as well as inland grassland and agricultural habitats. Long-billed curlews feed on a variety of food items, enabling them to forage in a diversity of habitats. Grasslands, cultivated and stubble fields, wet meadows, prairie dog colonies, wetland margins, and other areas of short herbaceous vegetation are common foraging habitats. Grassland vegetation less than 12 inches tall enables curlews to forage without restricting the maneuverability of their long bills.

Adequate short-growth grassland nesting habitat may be the single most important factor in sustaining long-billed curlew populations. The continued loss of grassland habitat remains one of the greatest threats to the long-billed curlew's future. Preserving and properly managing grassland, prairie, coastline, and shallow-banked, open water habitats can assist landowners in boosting local long-billed curlew populations, as well as populations of other species that rely on similar habitat.

Food

The long-billed curlew is an opportunistic feeder, consuming available food items by probing its bill in the mud and in animal burrows. Long-billed curlews feed on insects, marine and freshwater invertebrates, mollusks, amphibians, and wild fruits. When foraging in uplands, long-billed curlews feed on grasshoppers, beetles, and caterpillars and other invertebrates in low-growing grassy areas. During migration, long-billed curlews feed on crayfish, small crabs, snails, toads, and berries in coastal and lakeside habitats, as well as insects in upland habitats. Because long-billed curlews occupy coastal marine and freshwater shoreline habitats, grassland and scrub communities, agricultural fields and grazed pastures within any given season, food items consumed can vary considerably from region to region and habitat types occupied. Curlews display no consistent season-specific food item preferences or limitations.

Cover – Nesting and Brood-rearing

The long-billed curlew nests in the short grass (3-9 inches) of wet and dry meadows and prairies, grazed mixed-grass uplands and pastures, grassy floodplains, alkali flats, and occasionally in hayfields, cropland, and fallow or stubble fields. Nests are usually formed in a shallow depression that is lined with grasses or weeds to protect eggs and is often located close to (within 100-450 yards) standing water. Allowing vegetation to grow naturally in grassland meadows and prairies, and conducting appropriate grassland management practices such as prescribed burning, managed grazing, and rotational mowing, can help increase nesting and brood-rearing cover for long-billed curlews.

Cover – Winter

Winter habitat requirements for long-billed curlews include tidal flats, salt marshes, and other coastal habitats, inland grasslands, and agricultural fields. Winter habitats are occupied following migration from summering grounds. Long-billed curlews roost on the ground in the winter season along the coast on small, sandy off-shore islands, in coastal prairies, and at the edges of ponds, lakes, and other non-flowing bodies of water. Due to varying winter temperatures among curlew wintering areas, availability of common food sources (especially insects) may vary, but cover requirements remain constant. Insect abundance is a major factor in determining where long-billed curlews winter.



U.S. Fish and Wildlife Service

Water

Daily foraging activities and the types of foods eaten provide long-billed curlews with an adequate amount of water.

Interspersion of Habitat Components

Ideal interspersion of long-billed curlew habitat components on breeding grounds consists of a complex of short-growth grasslands, agricultural fields, wet and dry meadows and prairies, and grazed mixed-grass and scrub communities. Tidal flats, salt marshes, sandy islands and shoals along coastal shorelines, inland grasslands, and edges of ponds, lakes, and other non-flowing bodies of water are needed on the wintering grounds. In order for successful long-billed curlew reproduction and survival to occur, all seasonal habitat components must be available in close proximity. The most critical aspect of habitat interspersion, or the mix of different habitat types, is the proximity of foraging habitat to nesting, brood-rearing, and roosting cover. For example, the highest-quality nesting habitat is of little use if the nearest foraging habitat is not within close proximity.

Minimum Habitat Area

Depending on the diversity of vegetation in an area, minimum habitat size needed and territoriality displayed by breeding populations of long-billed curlews vary. Open, flat habitat with low vegetative diversity supports curlew territories of between 35 and 50 acres, and areas with varying topography and more diverse vegetation support territories closer to 15-20 acres. Distribution and interspersion of

food and cover in the form of varying habitats determines whether or not an area can support a long-billed curlew population and the number of individuals that that population will hold.

Long-billed Curlew Habitat Requirements Summary Table.

Habitat Component	Habitat Requirements
Food	<ul style="list-style-type: none"> • Insects – grasshoppers, beetles, caterpillars, and others. • Marine and freshwater invertebrates – crayfish, small crabs. • Mollusks – snails. • Amphibians – toads. • Fruits – berries.
Breeding Cover	<ul style="list-style-type: none"> • Short-growth grasslands, agricultural fields, wet and dry meadows and prairies, grazed mixed-grass and scrub communities.
Nesting and Brood-rearing Cover	<ul style="list-style-type: none"> • Short grass (3-9 inches) of wet and dry meadows and prairies, grazed mixed-grass uplands, pastures, grassy floodplains, alkali flats, hayfields, cropland, fallow or stubble fields within close proximity (100-450 yards) to standing water.
Winter Cover	<ul style="list-style-type: none"> • Tidal flats; salt marshes and other coastal habitats; inland grasslands; agricultural fields; sandy, off-shore islands; prairies; pond and lake edges.
Water	<ul style="list-style-type: none"> • Daily foraging activities and the types of foods eaten provide daily water needs.
Interspersion	<ul style="list-style-type: none"> • <i>Summer</i>: Prefer a complex of short-growth grasslands, agricultural fields, meadows, prairies, grazed mixed-grass and scrub communities. • <i>Winter</i>: Complex of sandy islands and shoals along coastal shorelines, tidal flats, salt marshes, and other coastal habitats, pond and lake edges.
Minimum Habitat Size	<ul style="list-style-type: none"> • Long-billed curlews require 35-120 acres of suitable breeding and nesting habitat depending on the topographic and vegetative diversity of an area.

Limiting Factors

For planning purposes, use the table below to subjectively rate the availability and quality of long-billed curlew habitat within a planning area, based on the above habitat requirements descriptions. Habitat communities and components that are absent or rated low are likely limiting long-billed curlew habitat quality.

Habitat Component	Availability/Quality			
	High	Medium	Low	Absent
Food				
Nesting and brood-rearing cover				
Winter cover (may not apply to areas in which long-billed curlews do not winter)				
Interspersion of habitat components				
Minimum habitat size				

Long-billed Curlew Habitat Management Practices

Prescribed Burning - Prescribed burning is used to maintain grassland communities in various stages of growth and vegetative diversity. Burning returns valuable nutrients to the soil and maintains grasslands and open woodlands as open habitat while promoting new growth of grasses, forbs and shrubs preferred by curlews. Although beneficial, prescribed burning is a highly regulated activity and should only be conducted in cooperation with state fish and wildlife agencies and with assistance from licensed burners. These agencies and individuals can help in the development of a burn plan, provide necessary tools, equipment, and supervision, and assist in obtaining all required permits. Prescribed burns used to stimulate new growth in grasslands should be conducted on a four- to five-year (two- to three-year in the southeast) rotational basis in late winter or early spring (February-April) depending on the region. Areas managed specifically for long-billed curlews can benefit from later burning (March-May) that maintains grasses at heights of 12 inches or less. Dividing the burn area into strips or plots can leave undisturbed escape and nesting cover adjacent to burned plots. Burn planning should include an assessment of plant species' response to fire. Disked firebreaks should be created around burn areas to maintain control of prescribed burns.

Managed Grazing – Livestock grazing can be a powerful tool to control succession and maintain productive curlew habitat in native pasture, rangelands, and other communities. Long-billed curlew habitat on grazed areas can best be maintained by avoiding overgrazing while allowing some disturbance to control succession. Areas managed specifically for long-billed curlews can benefit from grazing rotations that maintain grasses at heights of 12 inches or less through May. Rotationally resting pastures and fencing livestock from nesting and brood-rearing habitat may be necessary. However, in some regions of the curlew's range, continuously grazed lands are more commonly used by curlews than early spring-, early summer-, or deferred-grazed pasture. To avoid detrimental effects of grazing on other ground-nesting birds and mammals, determine the best grazing rotation to use on your property with regard to livestock herd size, vegetation composition, and topography.

Rotational Mowing - Rotational mowing can be used to maintain grassland communities in various stages of growth and vegetation diversity. Grasslands should be mown rotationally in strips (20-50 feet wide depending on a field's size) once or twice a year in early spring before nesting has commenced, or in the fall after nesting activities have ended, to leave undisturbed nesting habitat among mown foraging habitat. Landowners should work closely with local NRCS field officers, state department of natural resource officers, and other wildlife professionals when planning grassland management to determine mowing dates and techniques that minimize impacts to nesting birds and mammals.

Note: Each of these management practices are beneficial in removing residual, standing-dead vegetation by the beginning of the next breeding season, helping to facilitate curlew breeding and nesting activities.

Management Prescriptions

Management treatments should address the habitat components that are determined to be limiting habitat potential for long-billed curlews. For planning purposes, identify possible action items listed below to raise the quality or availability of each habitat component determined to be limiting. NRCS Conservation Practices and various programs that may provide financial or technical assistance to carry out specific management practices are listed where applicable.

Habitat Component	Management Options for Increasing Habitat Quality or Availability	Cons. Practices and Assistance Programs
Food	<ul style="list-style-type: none"> Create and maintain vegetative diversity within grasslands, meadows, and prairies by conducting rotational burning, mowing, and grazing when and where appropriate. 	327, 338, 528A, 645, 647 WHIP, EQIP, PFW, CRP
	<ul style="list-style-type: none"> Protect coastal wetlands, marshes, lakes and ponds from siltation and non-point source pollution by fencing livestock and providing bank stabilization through aquatic and bank vegetation plantings. 	390, 643, 657 WRP, WHIP, EQIP, PFW, CRP
	<ul style="list-style-type: none"> Reduce herbicide use on grasslands, especially near water, where application results in reduction of invertebrates (either terrestrial, marine, or freshwater) or berries used for food. 	
	<ul style="list-style-type: none"> Avoid widespread pesticide applications aimed at controlling grasshopper outbreaks, and assess the potential risks of such applications to long-billed curlew food supplies within inhabited areas. 	
Nesting and brood-rearing cover	<ul style="list-style-type: none"> Conduct prescribed burning on a three- to five-year rotational basis in late fall after nesting activities are completed. 	338, 645 WHIP, EQIP, PFW, CRP
	<ul style="list-style-type: none"> Conduct haying in a timely manner so as to provide short vegetation for the spring curlew nesting season (April-May). 	
	<ul style="list-style-type: none"> Reduce herbicide use when application results in loss of nesting, loafing, brood-rearing, or winter cover. 	
Winter cover	<ul style="list-style-type: none"> Protect coastal wetlands, marshes, lakes and ponds from siltation and non-point source pollution via fencing of livestock. 	390, 643, 657 WHIP, EQIP, PFW, CRP, WRP
Interspersion & minimum habitat size	<ul style="list-style-type: none"> Combine above prescriptions to increase interspersion of habitat components and amount of suitable long-billed curlew habitat. 	

NRCS Conservation Practices that may be useful in undertaking the above management actions.

Code	Conservation Practice	Code	Conservation Practice
327	Conservation Cover	643	Restoration of Declining Habitats
338	Prescribed Burning	645	Upland Wildlife Management
390	Riparian Herbaceous Cover	647	Early Successional Habitat Development
528A	Prescribed Grazing	657	Wetland Restoration

Available Assistance

Landowners interested in making their individual efforts more valuable to the community can work with the Wildlife Habitat Council and NRCS to involve school, scout, and community groups and their families, as well as state and federal fish and wildlife agency personnel, in habitat projects when possible. On-site education programs demonstrating the necessity of long-billed curlew habitat management can greatly increase the value of your individual curlew management project. Corporate landowners should encourage interested employees to become involved. Involving federal, state and non-profit conservation agencies and organizations in the planning and operation of a long-billed curlew management plan can greatly improve the project's success. Assistance programs available through various sources are listed below.

Programs that provide technical and financial assistance to develop fish and wildlife habitat on private lands.

Program	Land Eligibility	Type of Assistance	Contact
Conservation Reserve Program (CRP)	Highly erodible land, wetland, and certain other lands with cropping history. Stream-side areas in pasture land	50% cost-share for establishing permanent cover and conservation practices, and annual rental payments for land enrolled in 10 to 15-year contracts. Additional financial incentives are available for some practices	NRCS or FSA State or County Office
Environmental Quality Incentives Program (EQIP)	Cropland, range, grazing land & other agricultural land in need of treatment	Up to 75% cost-share for conservation practices in accordance with 5 to 10-year contracts. Incentive payments for certain management practices	NRCS State or County Office
Partners for Fish and Wildlife Program (PFW)	Most degraded fish and/or wildlife habitat	Up to 100% financial and technical assistance to restore wildlife habitat under minimum 10-year cooperative agreements	Local office of the U.S. Fish and Wildlife Service
Waterways for Wildlife	Private land	Technical and program development assistance to coalesce habitat efforts of corporations and private landowners to meet common watershed level goals	Wildlife Habitat Council (301-588-8994)
Wetlands Reserve Program (WRP)	Previously degraded wetland and adjacent upland buffer, with limited amount of natural wetland, and existing or restorable riparian areas	75% cost-share for wetland restoration under 10-year contracts, and 30-year easements, and 100% cost-share on restoration under permanent easements. Payments for purchase of 30-year or permanent conservation easements	NRCS State or County Office
Wildlife at Work	Corporate land	Technical assistance on developing habitat projects into a program that will allow companies to involve employees and the community	Wildlife Habitat Council (301-588-8994)
Wildlife Habitat Incentives Program (WHIP)	High-priority fish and wildlife habitats	Up to 75% cost-share for conservation practices under 5 to 10-year contracts	NRCS State or County Office
State fish and wildlife agencies and private groups such as local Audubon societies may have assistance programs or other useful tools in your state.			State or local contacts

References

- Forsythe, D.M. 1972. Observations on the nesting biology of long-billed curlew. Great Basin Naturalist 32:88-90.
- Pampush, G. J. and R. G. Anthony. 1993. Nest success, habitat utilization and nest-site selection of long-billed curlews in the Columbia Basin, Oregon. Condor 95:957-967.
- Peterson, R. T. 1990. Western Birds. Third ed. Peterson Field Guide Series. Houghton Mifflin Company, Boston, MA. 432 pp.
- Sauer, J. R., J. E. Hines, G. Gough, I. Thomas, and B. G. Peterjohn. 1997. The North American Breeding Bird Survey Results and Analysis. Version 96.4. Patuxent Wildlife Research Center, Laurel, MD.
- Terres, J. K. 1991. The Audubon Society Encyclopedia of North American Birds. Wings Books, New York. 1110 pp.
- Timken, R. L. 1969. Notes on the long-billed curlew. Auk 86:750-751.

United States Geological Survey (USGS), Northern Prairie Wildlife Research Center. 1999. Effects of management practices on grassland birds – long-billed curlew. Draft. 18 pp.

NRCS

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In cooperation with partners, the mission of the Wildlife Habitat Management Institute is to develop and disseminate scientifically based technical materials that will assist NRCS field staffs and others to promote conservation stewardship of fish and wildlife and deliver sound habitat management principles and practices to America's land users.



www.ms.nrcs.usda.gov/whmi

Wildlife

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The Wildlife Habitat Council's mission is to increase the amount of quality wildlife habitat on corporate, private, and public land. WHC engages corporations, public agencies, and private, non-profit organizations on a voluntary basis as one team for the recovery, development, and preservation of wildlife habitat worldwide.



www.wildlifehc.org

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